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PRELIMINARY NOTE ON THE PRESENCE OF A NEW GROUP OF NEURONES IN THE DORSAL ROOTS OF THE SPINAL NERVES OF THE WHITE RAT.

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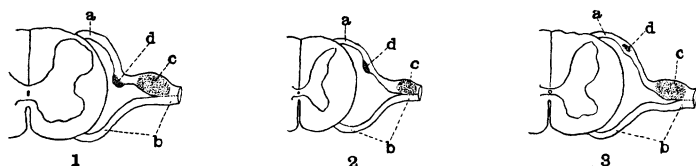
(From the Neurological Laboratory of the University of Chicago.)

While the writer was examining a large number of preparations of the spinal cord of the white rat at different ages, in order to determine whether the so-called "Hoffmann's nucleus," described recently by von Kölliker ("Weitere Beobachtungen ueber die Hoffmannschen Kerne am Mark der Vögel;" *Anat. Anz.*, Bd. XXI., No. 3 u. 4, 1902), appears in the central nervous system of mammals, his attention was drawn to a group of nerve cells in the dorsal roots of the spinal nerves.

The spinal cord of the white rat examined does not have an isolated group of efferent neurones in the region where it was found in the spinal cord of birds. Hence the nucleus of Hoffmann is not present in this animal. A new group of cells was, however, noticed in the dorsal roots, separated from the spinal ganglia and lying between the spinal ganglion and the cord. The shape and structure of the cell-bodies found in this new group coincides with that of the cells in the spinal ganglia, and further, the size of the cells found in this group is approximately similar to that of the cells in the corresponding ganglion. The cell-body is well formed and contains one large nucleus in which one nucleolus generally, or sometimes more than one, is visible. The stainable masses are present in the cytoplasm, showing a characteristic arrangement; the latter substance stains red with eosin with the same intensity as that of the spinal ganglion cells. In every respect the cells which belong to the new group are similar in appearance to the cells of the spinal ganglion. It is easy to see that the cell bodies are surrounded by a connective tissue capsule. In some instances, the capsule is more highly developed than that of the spinal ganglion cells.

The group just mentioned has been thus far found only in the dorsal roots of young white rats having a body-weight of 4, 5, 6 and 7.5 grams respectively, and in an adult gray rat; suitable preparations from the spinal cord of the adult white rat not being at the moment available.

The exact location of the new group of cells differs at different levels of the spinal cord. The above statements on the general character of the cells found, as well as the following description, is based on a study of the young white rats alone.



Semidiagrammatic illustration of the cross section of the spinal cord of the white rat: 1, lumbar cord; 2, thoracic cord; 3, cervical cord. *a* = posterior root; *b* = anterior root; *c* = spinal ganglion; *d* = new group of the cells.

In the lumbar region, these cells lie in the dorsal root fibers rather near the spinal ganglion, where the root enlarges slightly and forms an extension ventrally (Fig. 1). This local enlargement, however, is due to the fact that at this point the dorsal root fibers take a somewhat wedge-shaped course and the nerve cells lie around the pointed tip of the wedge. The total number of the cells seems to vary according to the individual. A single section, 6 micra thick, contains usually one or two cells, though sometimes more can be seen. Since the preparations employed were not made for the purpose of the present investigation and did not form a complete series, the writer was unable to determine the total number of the cells contained in one nerve root. In one case 26 cells were counted in twenty-three successive sections through a single root.

In the thoracic region the cells are located in an enlarged portion of the dorsal root as in the lumbar region (Fig. 2). The total number of the cells in the thoracic root seems greater than in the lumbar root.

In the cervical region this cell group is slightly modified. The cell-bodies lie within the dorsal root where it exhibits a slight

enlargement (Fig. 3). In general the cell group is found nearer the cord. In this region, the group seems to contain a smaller number of the cell-bodies than at the lower levels.

From the above it is clear : First, that these cells are located within a definite region in the dorsal root, not scattered, but forming a group. Second, the cells are contained within well-developed capsules as in the case of the mature spinal ganglion cells. The latter fact shows that the cells found in this group are not at this time migrating, since migration could not occur after the formation of the capsule. The detailed investigation of this cell-group is now in progress, and the suggestion of a name for it is reserved until a more complete examination has been made.